Rusi P. Taleyarkhan
612 Shady Creek Drive
Lafayette, IN 47905
(765)-447-8851; rusitaleyarkhan@msn.com

VIA FAX 517 273 8300

June 1, 2007

The Commissioner for Patents

United States Patent office

Washington DC

Dear Sir:

Application #10/692,755 - Response to Non-Compliant Amendment and Revocation of Power of Attorney to Counsel

The Applicant respectfully requests the Office to revoke the power of attorney of counsel Neil Jetter of the law firm of Akerman Senterfitt as requested in the letter of date May 25, 2007 and confirmed herewith on the attached US PTO Form 82. The applicant will continue prosecution of the present application including this response to the non-compliant amendment.

The applicant thanks the examiner for the interview of May 24, 2007, where a new set of claims (claims 34 to 47) was presented addressing the non-compliant amendment. It is the understanding of the applicant that the new claims are acceptable to the examiner, particularly in light of the extremely high temperatures noted in the disclosure and discussed at the 5.24.07 interview (e.g., Fig. 16). Furthermore, it is the understanding of the applicant that these claims will be entered. A copy corrected for errors is attached.

As requested by the examiner, the applicant respectfully will submit an IDS under separate cover (references attached). These include three independent verifications (Xu et al., 2005; Forringer et al., 2006; LeTourneau University, Texas, *Press Release*, 2006; and the Bugg,W report to Purdue University, 2006) of the present invention. The present invention and these verifications all use radiation induced vapor bubbles in their own parent liquid when placed in tensioned metastability. In addition the applicant submits , a paper published in the premier journal *Physical Review E* - Taleyarkhan et al., 2004 (see for example Fig. 7c) which demonstrates that thermonuclear fusion reactions emitting 2.5 MeV fusion neutrons are time correlated with implosion-induced sonoluminescence light flashes implying hot, compressed conditions as in the experimental conditions of the present invention.

As also discussed with the examiner, a theoretical foundation has also been developed which takes into account all relevant physics of the situation. It has passed peer review and validated by worldwide experts, and published in the premier journal *Phys. of Fluids* (Nigmatulin et al., 2005). This theoretical foundation when applied specifically to the method of the present invention also confirms thermonuclear conditions (see Fig. 13 of

Rusi P. Taleyarkhan
612 Shady Creek Drive
Lafayette, IN 47905
(765)-447-8851; rusitaleyarkhan@msn.com

Nigmatulin et al., 2005) with temperatures and pressures reaching in the range of 10^8K+ and 1,000+ Mbar, respectively. These evidence pieces were presented to and discussed with the examiner at the above interview and are included.

Very respectfully,

Rusi P. Taleyarkhan

Dr. Rusi P. Taleyarkhan

Inventor Applicant

Rusi P. Taleyarkhan
612 Shady Creek Drive
Lafayette, IN 47905
(765)-447-8851; rusitaleyarkhan@msn.com

IDS Input:

Bugg, W. "Report on Activities on June 6-7, 2006 Visit," Report to Purdue University, June 9, 2006.

Forringer, E., D. Robbins, and J. Martin, "Confirmation of Neutron Production During Self-Nucleated Acoustic Cavitation," Archived in Transactions of the American Nuclear Society, Vol. 95, pp. 736-737, November 12-16, 2006.

LeTourneau University News Release, Nov. 17, 2006.

Nigmatulin R. I., I. Akhatov, A. Topolnikov, R. Bolotnova, N. Vakhitova, R. T. Lahey, Jr., and R. P. Taleyarkhan, "Theory of supercompression of vapor bubbles and nanoscale thermonuclear fusion," Physics of Fluids, Vol. 17, 107106, 2005.

Taleyarkhan, R. P., J. S. Cho, C. D. West, R. T. Lahey,Jr., R. I. Nigmatulin, and R. C. Block, "Additional evidence of nuclear emissions during acoustic cavitation," Physical Review E, Vol. 69, 036109-1 to 11, March, 2004.

Xu, Y., and A. Butt, "Confirmatory experiments for nuclear emissions during acoustic cavitation," Nuclear Engineering and Design, 235, pp. 1317-1324, 2005.

RECEIVED
CENTRAL FAX CENTER
JUN 0 1 2007

PTO/SB/82 (01-06)
Approved for use through 12/31/2006. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REVOCATION OF POWER OF ATTORNEY WITH NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/692,755
Filing Date	10/27/2003
First Named Inventor	Rusi P. Taleyarkhan
Art Unit	3663
Examiner Name	Ricardo J. Palabrica
Attorney Docket Number	9750-1

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☐ I hereby appoint the practitioners associated with the Customer Number:

☒ Please change the correspondence address for the above-identified application to:

☐ The address associated with Customer Number:

OR

☒ Firm or Individual Name	Rusi P. Taleyarkhan		
Address	612 Shady Creek Drive		
City	Lafayette	State Indiana	Zip 47905
Country	USA		
Telephone	765-447-8851	Email rusitaleyarkhan@msn.com	

I am the:

☒ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature	Rusi P. Taleyarkhan		
Name	Rusi P. Taleyarkhan		
Date	6/1/2007	Telephone	765-447-8851

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

34 (New) A method for producing thermonuclear fusion, comprising the steps of:

providing a working liquid enriched with isotopic D or T atoms comprising molecules;

placing at least a portion of said liquid into a tension state, a maximum tension in said tension state being below the cavitation threshold of said liquid, said tension state imparting stored mechanical energy into said liquid portion;

directing nucleating agents comprising at least one of: neutrons, photons, alpha particles and fission products, at said liquid portion when said liquid portion is in said tension state, said nucleating agents having sufficient energy for nucleating a plurality of bubbles substantially filled with vapor from said liquid, said bubbles substantially filled with vapor, having an as nucleated bubble radius greater than a critical bubble radius of said liquid;

growing said bubbles substantially filled with vapor, and imploding said bubbles substantially filled with vapor, wherein a resulting temperature obtained from energy released from said implosion is sufficient to induce a thermonuclear fusion reaction of said isotopic D or T atoms comprising molecules in said liquid portion.

35. (New) The method of claim 34, wherein said thermonuclear fusion reaction is one or both of a D-D and a D-T reaction.

36. (New) The method of claim 34, further comprising the step of cooling said liquid to a temperature below an ambient temperature.

37. (New) The method of claim 34, wherein said tension state is a part of a time-varying pressure state including compressive and tensile portions.

38.(New) The method of claim 34, wherein said tension state is a constant tension state.

39.(New) The method of claim 34, wherein an acoustical wave source is used for said tensioning.

40. (New) The method of claim 39, further comprising the step of focusing acoustical waves provided by said acoustical wave source.

41. (Original) The method of claim 34, wherein said as nucleated bubble radius is from 10 to 100 nm.

42. (New) the method of claim 34, wherein a neutron source is used for said nucleating, further comprising the step of synchronizing neutron impact with a location in said liquid having a predetermined liquid tension level.

43. (New) the method of claim 34, wherein said liquid is a high accommodation coefficient liquid.

44. (New) The method of claim 34, wherein said fundamental particles are selected from the group consisting of alpha particles, neutrons and fission fragments.

45. (New) the method of claim 34, wherein said growing and imploding occurs responsive to an applied acoustical field.

46. (New) The method of claim 34 , wherein said liquid is an organic liquid.

47. (New) An apparatus for producing thermonuclear fusion, comprising:

a chamber containing a high accommodation liquid;

a means for inducing tension in said high accommodation liquid;

a nucleating agent comprising at least one of: neutrons, alpha particles, photons and fission products;

a means for enhancing the size of the nucleated bubbles in tension to a volume greater than a predetermined volume before inducing controlled implosion;

thereby producing thermonuclear fusion.